Correcting Market Failure in the Internet Gambling Industry: An economic Analysis of Legalization and Licensing Regulation in the United States

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I. Introduction

The economic impact of gambling stretches much further than the few well-known tourist attractions of Las Vegas and Atlantic City; gambling in some form spans every state across the United States. Jobs and tax revenue from casinos stimulate surrounding areas, and state-run lotteries generate billions in revenue. In 2004, lotteries generated over $48 billion in consumer spending (Hansen, n.d.). By definition, gambling is divided into three main categories: casino, betting, and lotteries. The internet presents a new frontier for the industry providing greater accessibility and anonymity. In several countries, including Belize, Austria, Antigua and Barbuda, Costa Rica, Australia, and the United Kingdom, internet gambling has been legalized with regulatory restrictions (Viaden, n.d.). The introduction of the internet as a new median promises to revolutionize the gambling industry in the US.

Since the induction of the World Wide Web in 1995, the internet gambling industry has expanded to a billion dollar industry at record pace. Expanded revenues can already be seen in several countries where internet gambling is currently legal. The Australian Bureau of Statistics (ABS), estimated that net wagers received via the internet in Australia increased on average 11.8 percent per year from 2000 to 2005, from $73.1 million to $114.3 million (FaHCSIA, n.d.). Such estimates have been proven to be grossly underestimated. The projected global net revenues of internet gambling for offshore companies was estimated to be $5.4 billion in 2009 from players in the United States, and $25.8 billion from players worldwide (American Gaming Association, n.d.). In the United States, for the past decade, internet-based gambling has been at the forefront of several legislation proposals being discussed in Congress. Although a large percentage of the gross internet gambling revenue comes from the US, legalization of this activity in the US has not occurred.

The Federal Wire Act, passed in 1961, prohibits the transfer of funds for purposes of betting or wagering via wired communication with the legislation primarily targeted at providers of the service (Kindt and Joy, 2002)(Landes, 2007). This piece of legislation is heavily relied upon by opponents of online gambling, who argue that the law also pertains to the internet. However, supporters of internet gambling legalization believe it is an antiquated law and those who conceptualized the law were not aware of the internet's potential, thus it was not a part of the meaning of the law and only applies to sports betting not poker or other casino games (Landes, 2007). Title VIII of the SAFE Port Act, the Unlawful Internet Gambling Enforcement Act (UIGEA), signed into law by President Bush in 2006, explicitly prohibits the transfer of funds from any institution to an internet gambling site, excluding fantasy sports, horse racing, and lotteries (Conon, 2009). As the federal law states,

> No person engaged in the business of betting or wagering may knowingly accept, in connection with the participation of another person in unlawful Internet gambling—
> (1) credit, or the proceeds of credit, extended to or on behalf of such other person (including credit extended through the use of a credit card);
> (2) an electronic fund transfer, or funds transmitted by or through a money transmitting business, or the proceeds of an electronic fund transfer or money transmitting service, from or on behalf of such other person;
> (3) any check, draft, or similar instrument which is drawn by or on behalf of such other person and is drawn on or payable at or through any financial institution; or
> (4) the proceeds of any other form of financial transaction, as the Secretary and the Board of Governors of the Federal Reserve System may jointly prescribe by regulation, which involves a financial institution as a payor or financial intermediary on behalf of or for the benefit of such other person.

The law targets the providers of internet gambling rather than the individual consumers. The general consensus presented by the typical rulings made by several courts is that internet games based on skill, such as online poker, are exempt from these laws. While this interpretation is technically untrue because skill based games have yet to receive exemption through amendments to the UIGEA, such games, especially online poker, are a widely spread internet activity that is difficult to prosecute.

Online gambling's legal status has yet to be well defined due to the political implications that accompany such a controversial activity. The median voter theory suggests that politicians can capture the most votes by submitting to the preferences of the median voter. Because gambling has often been viewed as an activity that promotes moral and religious degradation, politicians do not want to upset their constituency by implementing legislation to legalize the activity (Simmons, 2005). However, the potential billions that can be reaped from the new tax revenue source is a strong incentive for political leaders to legalize and regulate online gambling. A strong concern is the potential for gaming sites to capture the politicians and support them financially in exchange for lenient regulation standards. But political hurdles are not the motive behind online gambling being subjected to the most stringent form of regulation: prohibition. This course of action has been taken as a result of the strong potential for market failure in this industry caused by negative externalities and asymmetric information. Legalization of this industry in the United States, with certain regulatory rules in place, would reduce the potential for market failure and thus reduce the need for such stringent regulatory intervention in this market.

There are several micro economic tools that can help determine the impact of legalization and regulation of online gambling on society and individuals. The low start-up costs in comparison to resort casinos and the few barriers to entry make this a competitive market. Considering there are currently consumers who seek out gambling sites regardless of its legality, and that there are certain countries such as Alderney, where internet gambling is legal and sites are allowed to accept wagers from other countries (Viaden, n.d.), one can assume a relatively inelastic demand curve concerning internet gambling in general and a high elasticity for individual sites. Adding to this competitive market, the negative externalities can show

significant shifts of social welfare. One must also take into account the impact legalization will have on substitutes and compliments associated with online gambling, such as casino gambling and resort tourism. On an individual level, one can examine risk aversion and utility theory to view the effects on demand. There has been much discussion concerning the positive and negative effects on the individual and society associated with internet-based gambling. In order to investigate this further, I will add an analytical framework to this discussion using micro-economic tools, and provide an economic background to show that the suggested form of licensing regulation, will be able to mitigate the issues associated with legalization of online gambling in the United States.

The remainder of this paper proceeds as follows. The next section includes a review of the current literature on internet gambling. The third section explains the causes of market failure in the internet gambling industry. Section four imparts an economics analysis of the social and individual issues surrounding internet-based gambling. Section five consist of a consideration of how legalization and regulation could ameliorate the potential for market failure and generate overall benefits for the United States in terms of tax revenue and enhanced social welfare. Section six provides the limitation of this paper. The last section concludes this paper.

II. Literature Review

The striking difference between traditional casino gambling and internet-based gambling is the anonymity the internet provides consumers and producers. Internet gambling raises several security issues including minors having access to gambling, lack of security regarding consumers' financial information, possibility of money laundering through the sites, and lack of accountability should a problem arise. These security concerns have led to a number of

economic studies on the potential effects of legalization of online gambling in the United States. Economists have been particularly interested in the negative externalities associated with legalization and their potential social impact. However, there has been little attention concentrated on an economic analysis of the impact of these externalities and the influence of regulation.

Existing literature that is in part related to the social impact of these externalities is that of Landes (2007) and Clarke and Dempsey (2001) who consider the issues of underage gamblers, lack of consumer security, and lack of accountability of offshore sites. Landes (2007) compares how the security measures that are in place to protect consumers in traditional casino gambling are not available when it comes to online gambling because of the inherent nature of the internet. The internet is globally accessible and easily manipulated by those with technical skills, thus it is very difficult to monitor the millions of transactions that are made each day. Clarke and Dempsey (2001) explain the purposes of regulation, and in doing so list several negative externalities associated with online gambling that could be mitigated with government regulation. Both papers suggest the existence of strong potential negative externalities associated with internet-based gambling, and come to the conclusion that prohibition is an ineffectual approach and licensing is the best alternative. However neither explicitly analyzes how these externalities will affect the market or how licensing will contribute to the effects.

Instead of suggesting a government or external body implemented regulation such as licensing, Miller (2006) concentrates his study almost entirely on inter-market approaches to regulation, and most particularly on the need for self-regulation and alternative dispute resolution. Such resolution would be in the form of providing a means through which consumers can voice their concerns and receive help regarding disputed winnings, all in a effort to curb

consumers' perceptions of risk associated with internet gambling sites. Risk – actual and perceived – is an important factor when considering how regulation will affect an individual's choices. Although Miller (2006) presents the notion of an inter market industry association, there is no economic analysis, in terms of risk aversion or utility theory, to accompany these ideas or to explain how this type of regulation will affect the demand of online gambling.

Conon (2009) counters the idea that there is a need for outside regulation, and instead proposes definitional clarity of existing laws and stronger criminal sanctions and enforcement. He explains why internet gambling legislation has been at a stand still for the last decade and how/when/why the law needs to adapt to the changing role online gambling has in the American society. Similar to much of the literature mentioned above, Conon's arguments are intriguing, however he does not analyze how stronger enforcement will affect social welfare.

Taking Conon's opinion a bit further, Kindt and Joy (2002) argue that not only should internet gambling be banned domestically, but also prohibited internationally by a United Nations multinational treaty. They argue that online gambling can neither be practically nor functionally regulated and because of the industry's potential to destabilize national and international financial institution, it should be banned outright. They reason in support of the current extreme regulation of total prohibition. I counter Kindt and Joy's (2002) argument, citing the issue of the United States enduring all of the negative externalities that accompany online gambling without receiving the countervailing positive tax revenue.

While the external costs on society are the area of internet gambling most focused on, the impact legalization will have on other gambling industries, such as traditional casino or lottery games, is similarly intriguing. The question of whether or not internet gambling is a substitute or complement to other forms of gambling has yet to be strongly investigated. Hunsaker (2001)

conducted a study to explore the impact of riverboat casinos on the demand for gambling at casino resorts. She characterizes gambling as an "experience good", meaning the consumers do not know the value they will receive from the activity until after they have engaged in it. Her empirical results show that when a riverboat casino is introduced in one part of the country the demand for gambling at resort casinos such as Las Vegas goes up. The theory behind this change in demand is that the riverboat introduces people to the act of gambling at low transportation costs and those who find it enjoyable travel to the resorts for a future vacation. Applying a similar theory to the impact internet gambling will have, legalization should increase the demand for resort casino gambling because the internet introduces consumers to the activity at no transportation costs. However, the true impact on other forms of gambling cannot be deduced without an empirical study.

The research closest to the present paper is that of Simmons (2005), which provides an analysis of traditional casino gambling in the United States using micro economic tools. He introduces gambling through an expected utility function (with variables – wealth, winnings, stake, and probability of winning). Risk aversion of individuals contributes to modeling of the demand function of gambling. Simmons introduces the argument that there are two separate categories of negative effects of gambling: the intra-household transfers (i.e. debt, strained family relationships, etc.), and the negative social externalities (i.e. crime). I will follow Simmons' example and use some of the micro economic tools he presents and apply them to the emerging internet gambling market.

Another important aspect of Simmons' analysis of gambling is his explanation of the price of gambling. Before analyzing the potential effects of legalization of internet gambling, the price of internet gambling must be clearly defined. The most common demand model for

gambling relies on calculating the price of gambling by taking the face value of a gamble minus the expected value of monetary returns per wager. Simmons introduces this pricing model through the "take out", generally equivalent to the house advantage[1], which is the price paid to make a one dollar wager. Because internet gambling sites and traditional casinos function on a similar operating base, this definition of price is easily applied to internet gambling with a slight alteration to account for the non-gambling risks (i.e. fraud, identity theft, money laundering) associated with unregulated internet gambling. For the purposes of this paper, the price of internet gambling will be calculated by the effective price model plus the expected value of any cost associated with non-gambling risks and the penalty of getting caught doing an illegal activity. For example, if the face value of a wager is $100 and the house take is 5%, then the price of that gamble would be, $100 – p($95) + ($ value of non-gambling risks), because the house only pays out 95 cents to every dollar and there is an added element of risk with online gambling versus casino gambling.

III. Market Failure

There is a strong potential for market failure in the internet-based gambling industry. First through the negative externalities as mentioned above, including the potential for an increase in the number of addicted gamblers, which would lead to greater social costs from counseling and other support services, decreased revenue from local casinos, destruction of family life that includes debt, bankruptcy, and divorce, increased crime such as money laundering and fraud, and lack of consumer security on the internet resulting in identity theft, and

[1] The winning probability of a casino game is generally in favor of the house. This advantage or edge is how the casinos make money off wagers. As explained by About.com, "If you bet a dollar and was paid a dollar when you won, you would be paid true odds. However if the casino paid you 95 cents every time you won instead of a dollar the House edge would be 2.5%. Simply put, *the house edge is the difference between the true odds and the odds that the casino pays you when you win.* (About.com, n.d.)

underage users who could incur debt on a parent's credit card (Kindt and Joy, 2002). As Figure 1 shows, such negative externalities result in a supply of internet gambling, especially from overseas sites, that is greater than the socially optimal output. A federal Pigouvian tax charged to the providers of the activity in the amount of the difference between private marginal cost (PMC) and social marginal cost (SMC) would help mitigate the issue of excess supply by increasing the costs of operation and thus decreasing the supply to the socially optimal level and eliminating welfare loss.

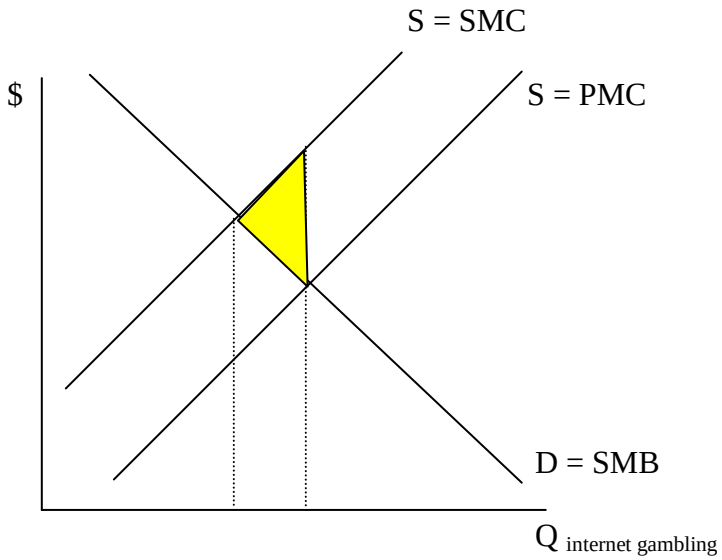

Figure 1: Negative Externality Cause of Market Failure
The negative externalities of addicted and underage gamblers, security risks, and crime (money laundering, fraud, etc.) are costs imposed on third parties (i.e. society) for which they are not compensated, resulting in the indicated welfare loss.

Along with this, one of the biggest negative externalities can be associated with another cause of market failure – asymmetric information. The trustworthiness of unregulated sites is questionable at best, and many sites employ people who have the coding knowledge to "fix sites", meaning they can alter the odds of winning in favor of the site (more so than a standard house advantage). As Figure 2 shows, sites can "rig" the probability of winning a game in their

favor. As a result the perceived demand is much greater than the actual or socially optimal demand, thus output is greater than the socially optimal output

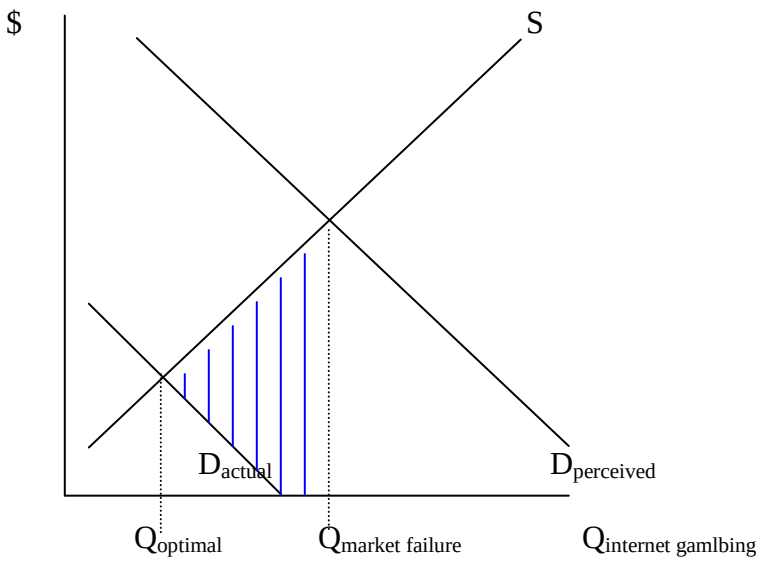

Figure 2: Asymmetric Information Cause of Market Failure
In the case of online gambling, the supplier (the site organizer or controller) has more information that the consumers in that there is very little a consumer can determine concerning the "fairness" of the games. Perceived demand is greater than actual demand, resulting in the indicated social welfare loss.

IV. Economic Analysis

This economic analysis of the legalization and regulation of internet-based gambling will be broken into two sections. The first will examine the market as whole (consumers and producers) and the potential effects on social welfare, while the second will look into how such actions will affect an individual's perceptions of risk and utility function.

4.1 Market Analysis

Internet gambling can be considered a competitive market due to the potentially large number of service providers and the few existing barriers to entry. Technically, anyone can create a casino website at a fairly low overhead costs and thus begin receiving profits right away. The cost of constructing and staffing a traditional casino may be $300 million, while a gaming

site requires much lower investment (Clarke and Dempsey, 2001). In addition, the demand for internet gambling can be argued to be somewhat price inelastic considering that some people currently are willing to gamble online regardless of the activity's illegal status in the United States. One effect that legalization may have on the industry is an increase in demand. As Conon (2009) argues, people generally follow and respect the law, thus if the activity becomes legal those who chose not to do so now may choose to participate in the future. As Figure 3 shows, on the supply side of the market, legalization will most likely increase the supply as the United States presents a potentially large market demand.

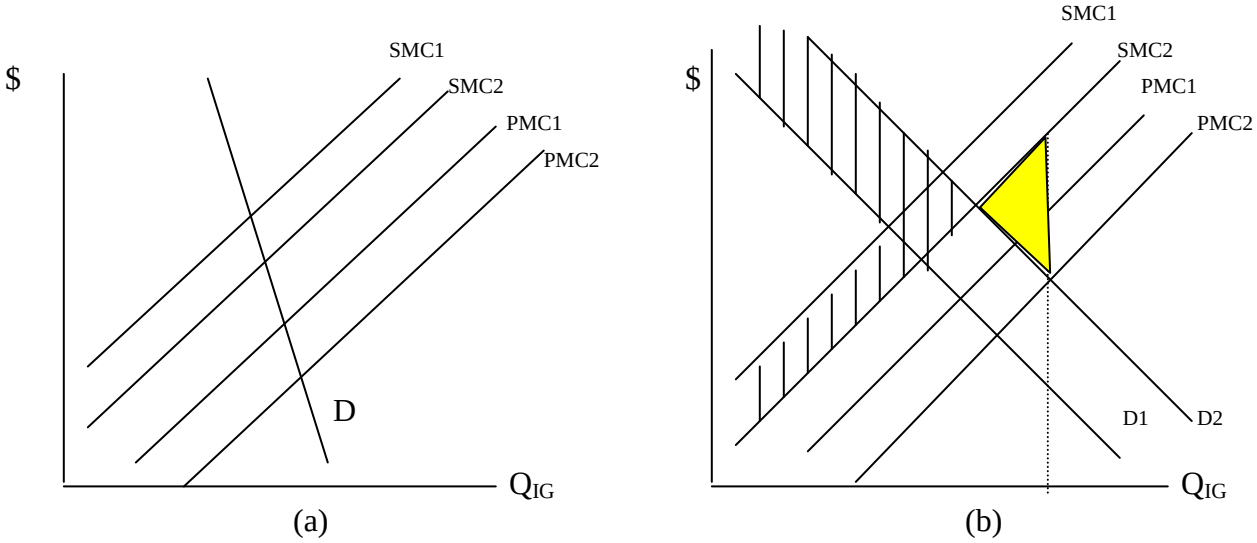

Figure 3: Supply and Demand of Online Gambling
The yellow in diagram b shows the social welfare loss from negative externalities after the increases in supply and demand. A Pigouvian tax would mitigate this area, leaving the shaded area showing the total increase in social welfare.

Conon's (2009) argument that people generally follow the law out of respect can be extended to producers. Suppliers of online gambling for the most part do not conduct business with in the United States or with customers from the United States because doing so would be a violation of the country's laws. This restraint is in part out of respect for the law and in part because the risks of getting caught and prosecuted while the activity is illegal are too high.

Diagram (a) of Figure 3 shows the inelastic demand curve of internet gambling as well as the effect legalizing the activity would have on supply. Supply would increase from PMC_1 and the socially optimal level SMC_1 to PMC_2 and SMC_2. If the perceived and actual risks associated with online gambling decrease, demand will increase. Diagram (b) combines these effects and the shaded area shows the overall increase social welfare with an imposed Pigouvian tax.

The effects of legalization will not be concentrated solely on the online gambling market. Several substitutes and complements will be affected as well, in particular the casino and resort tourism markets. Conon (2009) presents the economic multiplier effect of gambling dollars referring to the fact that "'normal consumer spending benefits the economy by more than just the amount spent"'. While this multiplier does apply to dollars spent on normal casino gambling (casino consumption contributes to jobs and tourism of the surrounding area), it would be hard to argue that the effect applies to internet gambling considering sites employ only a few people and there certainly is not tourism associated with internet gambling. On the contrary Hunsaker's (2001) findings that the introduction of riverboat casinos positively affects demand for resort casinos indicates that internet gambling may have a similar effect on such industries. Seen in Figure 4, if online gambling becomes legal, some will view the easier access as a substitute for having to travel to a casino and stay in a resort/hotel. Thus the demand for online gambling will increase, resulting in a decrease in demand for casino gambling. In contrast, some may view internet gambling as a low transportation cost way to test their enjoyment of gambling, and if they enjoy it, may chose to spend their next vacation at a resort casino. In such a case, the increase in demand for internet gambling will result in an increase in demand for casino gambling as well.

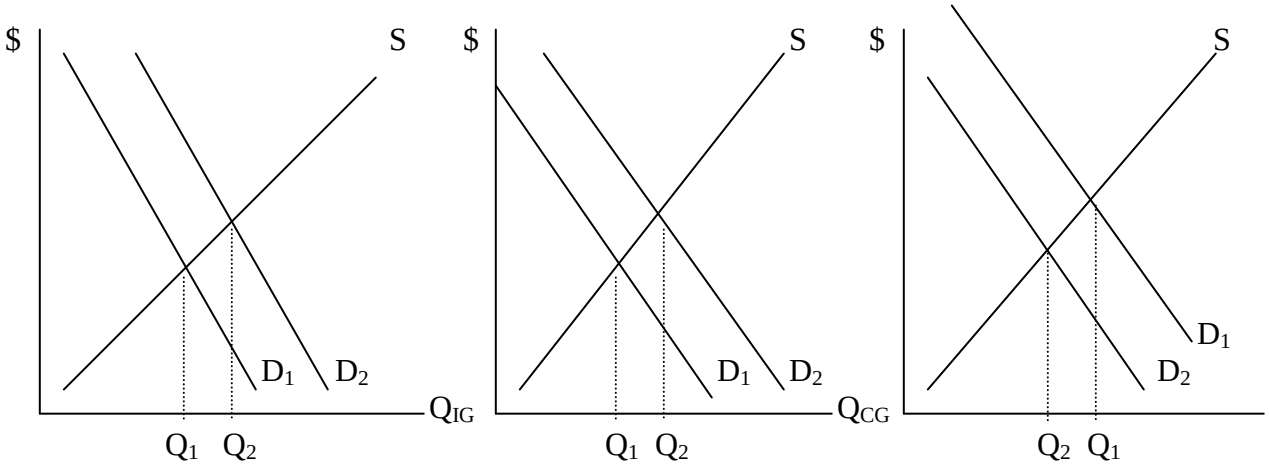

Figure 4: The Effects of Legalization of Internet Gambling on the Resort Casino Gambling Industry
Opening a new market in the United States will affect existing ones, most particularly traditional casinos and resort tourism. The first diagram shows an increase in the demand for internet gambling (IG). The diagram in the middle shows Hunsaker's (2001) argument that IG is a complement to casino gambling (CG), while the third diagram depicts Conon's (2009) argument that IG and CG are substitutes. Whether or not internet gambling will affect these industries as a substitute or complement has yet to be seen.

4.2 Individual Consumer Analysis

There are several opaque vulnerabilities to be wary of when considering the internet. In particular, there are several negative externalities associated with online gambling. To begin there is the social cost of underage users. Clearly the current gambling age limit was enacted to protect minors and to ensure that those participating in the activity are fully capable of making informed decisions. While casino gambling has fairly full-proof prevention against underage gamblers in the form of presenting identification before being allowed into an establishment, the internet is not endowed with a comparable age verification check, presenting a potential social cost.

Security is another, potentially devastating, externality. In casinos, consumers can monitor all transactions; on the internet however, hackers or the sites themselves can steal financial information. The lack of accountability of offshore sites that are frequented by many Americans creates another strong negative externality.

Market and social welfare is dependent upon individuals' demand, and "gambling is a principle inherent in human nature" as Edmund Burke stated in a speech before the House Of Commons (1780). The reason several Americans choose to use offshore gambling sites is due to the expected utility they believe they will receive. Simmons' (2005) presentation of the expected utility of casino gambling offers a good formula that can be applied to internet gambling. Simmons' formula: $E(U) = pU(W + G) + (1-p)U(W - S)$, takes into consideration the variables – U = utility, W = wealth, G = winnings, S = stake, and P = probability of winning a wager. The expected utility of a game is calculated by multiplying the probability of each outcome by the value of the outcome. According to Simmons' formula, the value of the high outcome is wealth plus winnings and the value of the low outcome is wealth minus stake. When calculating the expected utility of gambling one must also take into account the diminishing marginal utility of money. As the amount that one wins increases, the utility received from each continued increase in winnings is less than the utility received from the previous increase in winnings. Diminishing marginal utility of money indicates a concave utility function. In addition, the utility gained from gambling can be two-fold, utility from the potential winnings received and from gambling as a consumption good or social activity.

Figure 5 shows the effect legalization would have on an individual's calculated utility of a gamble. Due to the nature of a gamble, the utility function shows the low outcome, a loss of one's money, as negative returns. If there is a perception that a game is "rigged" from lack of regulation, then the overall total utility of playing the game is suboptimal. If a consumer knows he is participating in a fair gamble, then his total utility for any given wager will increase from TU_1 to TU_2 because his perceptions of non-gambling related risks (i.e. fraud, identity theft, prosecution) have been decreased, if not eliminated, by regulation. Thus, legalization and

regulation would decrease the disutility from risk, and for any given wager, the consumer will receive greater utility.

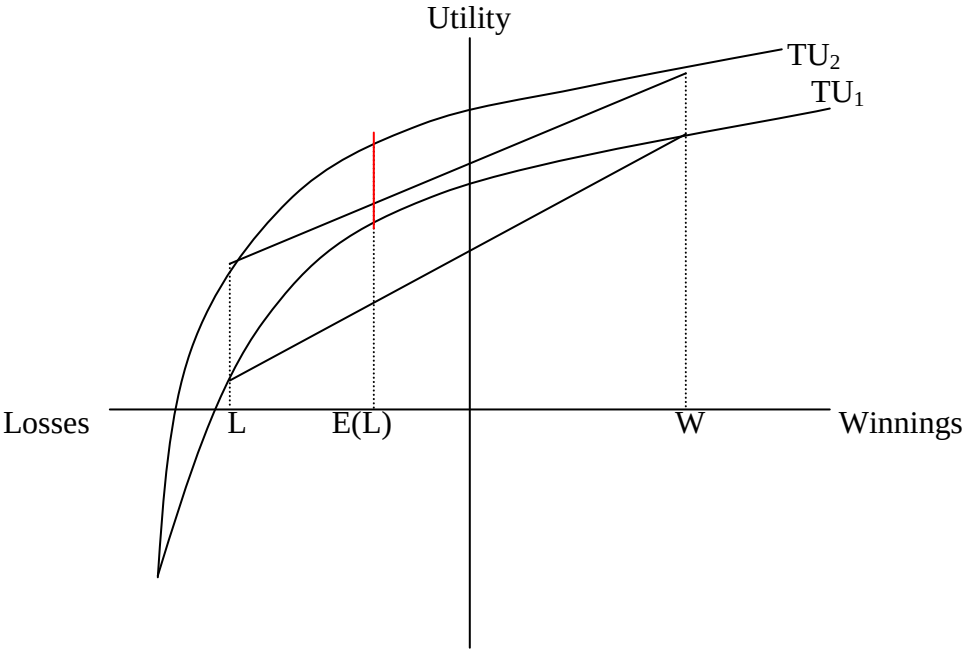

Figure 5: Utility Theory and Risk Aversion Associate with Online Gambling
We assume that even if a person loses all of his money when gambling he still gets some value/utility from the activity itself. The expected utility of a game is calculated by multiplying the probability of each outcome by the value of the outcome. The red line segments represent the disutility from risk.

Expected utility is the amount of happiness or utility one will receive from a wager, while expected value is the monetary value one believes he will receive from a wager given the probability of winning and loosing. Both are similar in that they influence a person's consumption decision. The ability of overseas accounts to "rig" games, or skew the probabilities in favor of the house (site) influences one's perception of the risks involved in gambling. Figure 5 follows the common assumption that most people are risk averse, meaning they will generally refuse a fair gambling because the expected utility from the wager is less than the constant utility they have without the wager.

The question brought up most often when researching gambling and utility theory, is how a person can simultaneously gamble and buy insurance. As Simmons (2005) explains, "only a risk averse person would be prepared to pay a premium to reduce a risk by purchasing insurance. [Yet] someone who buys a lottery ticket effectively pays to take on risk, since the expected returns are known to be negative". The fact that gambling can be viewed as a consumption good or social activity allows one to model the utility of internet gambling through a risk averse individual. Figure 5 shows that even with negative expected returns, a consumer will receive positive utility. I argue this result is legitimate because of the fact that gambling can be viewed as a social activity, and the utility from the social aspect contributes positive utility. Using risk theory one can see how legalization may increase the expected utility of gambling by reducing the risk individuals perceive when considering this activity, by eliminating the probability of getting caught participating in an illegal activity and by reducing the potential for sites to "rig" the outcomes, making the element of chance constant.

When the perceived risks are reduced, the risk-returns ratio is increased. Figure 6 depicts the indifference curves associated with the risk-returns ratio. The straight lines represent the market-determined trade-off (TO) between risk and returns, and the curves represent an individual's indifference curves (IC). If the risks associated with online gambling are reduced when the activity is legalized, then for any given wager, the risk-returns ratio will increase. That is, as a wager gets more risky (i.e. higher stakes), the payoff one is likely to receive is greater after legalization than before. The shift between TO_1 and TO_2 results in a shift from IC_1 to IC_2, where the individual is at a higher indifference curve than before. Being on a higher indifference curve indicates an individual will receive greater utility from a wager with a specific calculated risk. For example, if a person places a wager with X amount of risk while internet

gambling is illegal, and has the potential to win Y returns on that wager, then legalization would increase the potential returns to Z (where Z > Y). Shown in Figure 6, the greater returns accompanying the wager of the legal activity at X risk results in greater utility from making that wager.

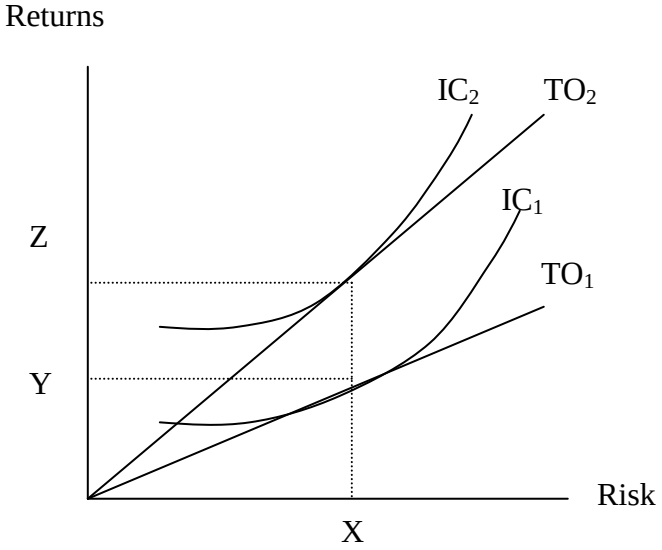

Figure 6: Indifference Curves and Risk-Returns Ration
Reducing the risk of penalty associated with internet gambling increases the risk-returns ratio and raises an individual to a higher indifference curve.

If legalization decreases the non-gambling related risk of internet gambling, then a consumer's indifference curves would shift to accommodate this greater utility per wager. Diagram (a) in Figure 7 shows how the indifference curves would rotate and become steeper, indicating an increased preference for internet gambling. In addition, if legalization increases the expected value of any give wager, then looking at one's budget constraint for gambling versus a bundle of all other goods (Diagram (b), Figure 7), the budget constraint would rotate outward because one could afford to "purchase" more internet gambling with his money. A reduction in the price of gambling would lead to an increase in the quantity demanded of gambling. This, in combination with the increased utility from less risk, which resulted in a change in tastes and

preferences, would lead to an increase in the overall "purchase" of internet gambling and thus result in an increase in the demand for internet gambling (Figure 3).

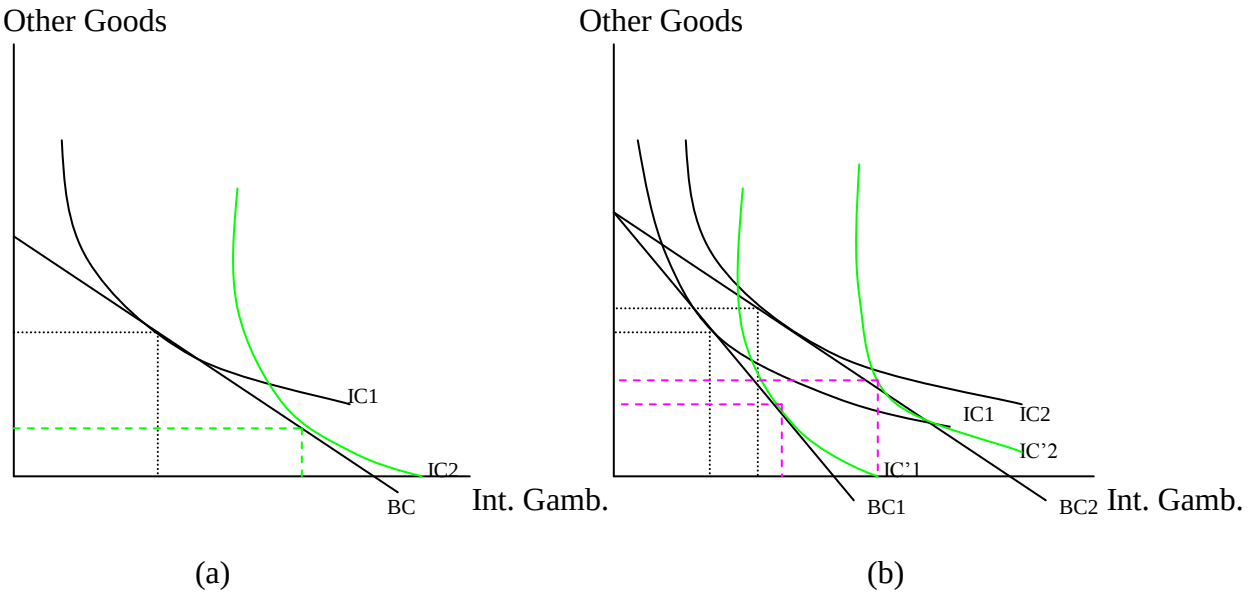

Figure 7: Budget Constraints and Indifference curves
The change in tastes and preferences from the increased utility per wager results in a new set of indifference curves. These steeper indifference curves imply an increase in the demand for internet gambling.

V. Policy Suggestions

Several suggestions have been made regarding the implementation of regulation should online gambling become legal. In order to mitigate the negative externalities, some economists suggest licensing as a signal to consumers that the site has government (or some impartial external body) certification and thus is more trustworthy. Others suggest the government-sanctioned sale of internet domain names to earn extra revenue. Finally, some believe an implementation of operating disclosure on part of the sites should be a requirement to operate.

As prohibition is an extreme form of regulation and, in my opinion, not necessary for this industry, legalization and licensing regulation is the social welfare maximizing option concerning online gambling. Licensing will not alleviate all of the negative externalities simply due to the nature of the internet as there is always the possibility that those experienced enough

could “hack” and “rig” almost anything. However, the tax revenue gained from legalization will offset the impact of the negative externalities.

Belize is one of several countries that has legalized online gambling and issues licenses of gaming sites wanting to operate with in their borders. Licenses are granted on a yearly basis, requiring a $10,000 down payment, as well as an annual $10,000 renewal fee (Viaden, n.d.).

The main issue concerning licensing is deciding who will be the governing body that issues, adjusts, and manages the licenses. One option would be to follow the example of other nations and allow/rely upon independent sites to decide if a site meets the minimal requirements for certification. There are several organizations that currently service overseas markets including eCommerce and Online Gaming Regulation and Assurance (eCOGRA) – founded by online gambling companies. ECOGRA is an example of inter market self-regulation that requires impartial inspection and review. Other organizations used by overseas markets to test and audit internet gambling sites, include Certified Fair Gambling [CFG] and Technical System Testing [TST] (Viaden, n.d.). While third party organizations such as these may very well be legitimate, they have the potential to be “captured” by gambling sites to “adjust” their finding in exchange for large monetary compensation. As a result, I argue that the federal government is the best option for maintaining regulatory control. While the government is not immune from capture, there are enough checks and balances that could hopefully detect such capture and eliminate it. The government would be the best choice for a regulatory body because it is assumed the government functions to maximize the social welfare of its citizens and thus would be trusted enough to determine the legitimacy of a site. If the government issues a list of which sites have licensing and have been approved, then people can make their choices with better information.

Before a site receives its certification, it must meet certain regulatory prerequisites. The site must disclose operating/security/financial structures, such as where its financial backing comes from, standard payment sites such as PayPal, Neteller, Firepay and how it will verify the age of gamblers, and it must undergo an examination to make sure the games are fair. Also, in order to alleviate the potential intra-household transfers, sites should be required to provide and advertise counseling directed at public awareness of the problems associated with pathological gamblers and offer affordable treatment. Finally, to alleviate consumer complaints, sites must agree to some type of dispute resolution – be it through a third party site such as Independent Betting Adjudication Service (IBAS) in the UK, which provides dispute solutions between gambling operators and gamblers (Viaden, n.d.) – or just employees from the site being available to address consumers. Thus the security risks to consumer will be reduced and underage users will be prohibited and new sites will enter the market that otherwise may have stayed out of the US market due to fears of prosecution. More people will choose to participate in the activity, increasing demand, and more sites will be available to fulfill demand, leaving the market with a greater contribution to social welfare.

VI. Paper Limitations

This analysis is limited to a micro economic framework. While many of the arguments concerning online gambling are traditionally viewed through a micro economic lens, analyzing how these issues play into the national and international economies overall could contribute to the current discussion. A macro-economic model, outside the scope of just the gambling market, could contribute a greater understanding of how the legalization of online gambling will affect the economy both foreign and domestic. In addition, while it was briefly mentioned in this

paper, analyzing the impact legalization and subsequently increased demand for internet gambling will have on casino gambling could serve to better explain the true economic impact in certain local economies. Finally, the utility theory/ risk perceptions analysis was based on an assumption that most of the population is risk averse. However, whether this is true or not is an empirical question. There is no empirically tested explanation of why some people gamble and simultaneously buy insurance. Some gambling games (such as roulette) alone have negative expected values; thus it is a risk seeking activity. Yet buying insurance is a risk averse action. I argue that the expected utility of the act of gambling itself increases the expected value. People continue to gamble regardless of the negative expected value, suggesting that the utility from the social aspect of the activity is significant. However empirical research would need to be conducted in order to determine how much this offsets the negative expected value.

VII. Conclusion

This examination was done to add an analytical framework to the current discussion regarding legalization and regulation of internet-based gambling. Although the negative externalities seem greater in number than the income transfer of new tax revenue, one must take into account the fact that many of these negative externalities exist regardless of the legality of online gambling. While prohibition and greater prosecution of violators may alleviate some of these negative externalities, the probability/effectiveness of prohibition is limited due to the nature of the internet and the option for people to use overseas sites. There may be an increase in intra-household negative externalities such as debt, bankruptcy, and divorce, but requiring sites to provide and advertise counseling for problem gamblers may defer this increase slightly. While the substitute or complement effects of increased demand for internet gambling on resort

casino demand is unclear, since establishments in Las Vegas and Atlantic City are huge international tourist attractions, bringing in billions of dollars annually, they most likely will not be negatively affected. The smaller, local casinos will not be too greatly affected because they offer a differentiated product in that many of those who participate in gambling enjoy the social aspect of it as well as the tactile experience of actually going to a casino.

Legalization and licensing regulation of internet gambling can help ameliorate the market failure potential in this industry. Adding a Pigouvian tax will amend the negative externality cause of market failure by reducing output quantity to the socially optimal level where social marginal cost is equal to social marginal benefit and reducing, if not eliminating, the social welfare loss. The asymmetric information market failure will be resolved through the information sharing requirements that sites must comply with before receiving their license. Consumers will have all the necessary information to make decisions, thus the actual demand will be equal to the perceived demand, and the industry output will be the social optimal quantity.

Legalization and regulation will not add new negative externalities but will help alleviate the current effects on social welfare by contributing a large tax revenue that will stimulate the economy, reduce the deficit, and the tax revenue can promote several "multiplier effect" programs, including specific educational programs, new parks, and other construction projects, similar to how lottery revenues are spent. Such programs would, in turn, create jobs and increase social welfare, which in a sense can be considered a multiplier effect. A reduction in the risks associated with online gambling will lead to new sites entering the market and increase the demand for the good, as well as fulfill a demand that potentially already exists but is not yet fulfilled due to the illegality of the activity, further adding to the improvement of social welfare.

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